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AUTHOR Inglehart, Marita; Brown, Donald R.
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ABSTRACT

This study examined the way in which the path of development of a professional self influences a person's achievement in the related academic field. It explored how the professional self is developed and how the factors that influence such a development shape a person's performance. Two factors were of interest: (1) the time at which the professional self was developed; and (2) the causes that contributed to this self-development. In the first year of medical school, subjects completed a questionnaire which dealt with their decision to choose medicine as a career. Eighteen items addressed the question of which factors had influenced them to enter medicine. Subjects were 1,156 medical students who were followed for 4 years, beginning with their first year in medical school. It was assumed that all subjects had a professional identity (wanting to become physicians) but that they differed in the development of this identity. Results revealed that it was not necessarily advantageous for a person to decide on a certain career very early in life and/or to base such a decision on external factors. An identity crisis in which a person's abilities and interests were used as reference points for deciding upon a certain profession seemed to be quite beneficial for achievement related directly with a career. (Author/NB)

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Self-development and Academic Achievement - A Longitudinal Analysis

Marita Inglehart & Donald R. Brown

The University of Michigan, Ann Arbor, MI.

Marita Inglehart

Department of Psychology

The University of Michigan

580 Union Drive

Ann Arbor, MI. 48109

Phone: (313) 747-3928

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Abstract

This paper examines how the path of development of a professional self influences academic achievement related with it. Two factors are of specific interest here, namely (a) the time at which the professional self is developed, and (b) the causes that contributed to this self-development. Hypotheses derived from (a) a cognitive perspective, and (b) research on the significance of identity development are tested against each other. Results from a four year panel study with 1156 medical school students show that identity related issues are of crucial importance when studying the influence of self-schemata on achievement. The implications of these findings for understanding the process of identity formation and its consequences for related behavior are discussed.

Self-development and academic achievement - a longitudinal analysis

Introduction

This paper investigates how the path of development of a professional self influences a person's academic achievement related to this profession. Specifically, we are interested to explore how the time at which a professional self is developed and the factors that influence such a development shape a person's performance related to this self.

This question is theoretically very interesting, because it can be approached from two different theoretical perspectives which offer contradictory hypotheses concerning this issue. The first area is the research on the nature and effects of identity crises (see Erikson, 1950, 1956); the second position is a cognitive approach to our question (Markus, 1977; Cantor & Kihlstrom, 1986).

Research on the significance of identity crises was mainly influenced by Erik Erikson's work (1950, 1956). He states that identity formation is a life-long process. One important aspect of this process is the time of identity crisis at the end of adolescence. Erikson describes adolescence as a time of "moratorium"; the adolescent goes through a psychosocial stage in which he /she is no longer a child, but not yet an adult. In this part of life, the major crisis centers around the conflict between defining and finding one's identity versus struggling with role confusion. If such a crisis is not experienced, it can be due to the fact that a person foreclosed any struggle to find an identity by accepting whatever identity the external

world (parents, relevant others) offers. It is also possible that this crisis is not yet resolved -- which would leave the person in the moratorium stage -- or not successfully resolved in the past or has never been approached -- which would leave the person with a diffused identity. The optimal outcome of this crisis would be that a person develops a clear sense of identity and commitment. Marcia (1966) refers to such a person as an "achiever".

Research demonstrates that resolved identity crises are beneficial. Persons who had an identity crisis are superior to others on several dimensions (Bernard, 1981; Bourne, 1978) such as in their academic achievement (Cross & Allen, 1970), in their achievement motivation (Orlofsky, 1978), and in their overall adjustment (Marcia, 1976). Persons with a diffused identity or a foreclosed identity are found to be inferior on these dimensions to "achievers".

This theoretical position has clear implications for the question of interest in this paper, namely on how the way a professional self is developed influences the academic achievement related to this self. According to this perspective we expect that if a person forecloses any struggle to find an identity in adolescence by accepting early on in life a professional identity presented to him or her by relevant others, the commitment to such an identity should be lower than if the person had struggled successfully through an identity crisis. As a consequence, foreclosing one's professional identity by either deciding very early in life on a professional self or by accepting a professional self due to pressure from relevant others (parents, teachers) should lead to lower achievement than developing a clear identity after an identity crisis.

The second area of research that is concerned with a person's self and its implications for later achievement is dominated by a cognitive

perspective. Since Markus' (1977) influential research on the cognitive representation of the self and its role in information processing, increasing attention has been focused on the self and its effect on thoughts, feelings, and actions (Cantor & Kihlstrom, 1986; Klinger, 1977; Little, 1983). Representations of the self have been shown to mediate both which goals one chooses to pursue (Niedenthal, Cantor, & Kihlstrom, 1985) and how hard and long one perseveres in achieving them (Ruvolo & Markus, 1986). According to this perspective, one would argue that the earlier a person develops a self-schema in the professional domain, and the more this self-schema is tied to other important cognitions such as one's abilities and interests, but also one's parents' expectations, the better the later achievement related to this aspect of the self should be.

Hypotheses

In this study, we followed a group of 1156 medical students from their first year in Medical School until four years later. We assumed that all of the students had a professional identity, namely wanting to become an M.D., but that they differed in the development of this identity. Some of these students might have decided very early on in their lives (before even reaching adolescence) that they wanted to become M.D.s. Others might have decided on this career after leaving high school. Some students might have chosed to enter a Medical School Program for external reasons - such as that it was important to their parents or that early in their academic career teachers had suggested it. Other students might have chosen medicine as their profession because of more self-related reasons - such as considerations of their own interests and abilities.

According to a cognitive perspective we expect that the earlier the student made the decision, and the more it was tied to other significant

cognitions in the student's life, the better the student's achievement should be. Concretely, we postulate in Hypothesis 1 that

(1a) the earlier the students decided on medicine as a career,

(1b) the more relevant others had influenced them early in life,

(1c) the more they had cognitive support for this decision - such as seeing role models or growing up with a certain family tradition of medicine or expectations from others,

(1d) the more their decision was related to their self -- their ability and interest --

the better their academic achievement will be.

According to research on the significance of identity crises, we expect that foreclosing such a struggle for identity by making a very early decision or by making a decision due to external factors (importance to parents, e.g.) the less well the students' academic achievement should be. Achieving a professional identity by tying it to self-relevant cognitions on the other hand should be a positive predictor of academic achievement.

Consequently, Hypothesis 2 states that

(2a) the later the students decided on their career,

(2b) the less relevant others had pressured them early in life,

(2c) but the more cognitive support they had, and

(2d) the more their decision was related to their self,

the better their academic achievement should be.

While hypotheses 1a and 1b make opposite predictions to hypotheses 2a and 2b, both theoretical perspectives predict the same effect concerning the influence of self-related cognitions and cognitions related directly to the

profession on these students's academic achievement (compare hypotheses 1c and 1d with hypotheses 2c and 2d).

Method

These hypotheses were tested on a sample of medical school students (N=1156) who entered the University of Michigan Medical School between 1976 and 1981. In the first year of this program, they answered a self-administered questionnaire which among other topics dealt with their decision to choose medicine as a career. Eighteen items addressed the question which factors had influenced them to enter medicine as a career. For each item the students indicated on a 5-point rating scale (from 1 = "not at all important" to 5 = "very important") how important this factor had been for their decision. A principal axis factor analysis of these 18 items with Varimax rotation resulted in seven factors (see Table 1 for items and factor loadings). Furthermore, 2 items were concerned with how early the student had thought of entering medicine and when he/she had finally decided on this career. The answers to these two items were added up as an indicator for the time the students had made their decision.

-- Include Table 1 about here --

Two factors, namely the importance of entering medicine for the parents and early influence by elementary or high school teachers are considered as early external reasons for developing a professional identity. Two factors, namely the influence of role models and general cognitions connected with a positive impression of medicine, are interpreted as cognitive factors that are tied more directly to a student's development of a professional identity. Two factors, the emotional support provided by parents and by significant others such as friends, other adults, and throughout college, are interpreted as positive sources that in a more general way allow the student to feel free and

supported to work on the development of his or her professional identity, but at the same time might also pressure the student towards a certain decision. Finally, one factor was concerned with self-related cognitions, namely with the students' interest and abilities. Indices for these seven factors were constructed by adding up the responses to the items loading on each factor.

Career related academic achievement was measured with three indicators. The first indicator is the total score in the National Board of Medical Examination I (NBME-I) taken in the third of the medical school program. This standardized examination is given nation-wide and tries to assess the students' knowledge in general science (anatomy, physiology, biochemistry, pathology, microbiology, pharmacology, behavioral science). The second indicator is the total score in the National Board of Medical Examination II (NBME-II) taken in the fourth year of the program. This examination is concerned with medical knowledge such as in medicine, surgery, obstetrics/gynecology, public health/preventive medicine, pediatrics, psychiatry. The third indicator is the rating for the students' clinical performance during their rotations in the hospital.

The data were analyzed with regression analyses.

Results

The two theoretical perspectives considered here had made opposing predictions concerning the influence of the time at which a decision was made (compare hypotheses 1a and 2a) and the influence of external factors (compare hypotheses 2a and 2b) on the students' academic achievement.

As can be seen in Table 2, there was clear support for the identity crisis explanation and against the cognitive perspective in regard to the importance of external factors: The more the students decided to enter medicine, because it was important to their parents, the less well they did in

all three measures of academic achievement. And the more their decision was influencced by early external influences - namely, their teachersin elementary school or high school, the worse was their academic achievement -- as measured in the NBME-II and the clinical ratings.

-- Include Table 2 about here --

The time at which the students had decided on entering medicine was less important for a prediction of their academic achievement. But if any influences could be demonstrated, they seemed to go in the direction of undermining academic achievement (see the influence of "Time" on NBME-II achievement).

Concerning the influence of self-related cognitions and cognitions more directly tied to the profession, the two theoretical perspectives had made analogous predictions (compare hypotheses 1c and 1d with hypotheses 2c and 2d). Both positions predicated a positive influence of these factors on the students' achievement. As can be seen in Table 2, these hypotheses were supported in the analyses for predicting the clinical ratings. The more the students' decision was tied to self-related cognitions and cognitions more directly related to medicine, the better the students' clinical scores were.

Discussion

The goal of the current study was to examine the relationship of the process by which a person arrives at having a certain professional self to the performance of this person while preparing for it. The results clearly demonstrate the significance of this issue. We found that it is not necessarily advantageous for a person to decide on a certain career very early in life and due to external factors. On the contrary, an identity crisis in which a person's abilities and interests are used as reference points for deciding upon a certain profession seems to be quite beneficial for

achievement related directly with a career.

These results also point to the importance of gaining a clearer understanding of which factors are exactly involved in this process of developingg the self as well as of the process that mediates between these factors and later achievement. While the research on the significance of going through identity crises contributes to our identification of relevant factors in this process and makes the correct predictions about the long-term outcome of such experiences, this research is not offering any insight into the specific mechanisms that mediate between having gone through an identity crisis and higher achievement. It is exactly at this point that research from a cognitive perspective can make its contribution. Further research on the role of the self-development on later performance should therefore build on the findings from both research domains.

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Table 1: Results of the factor analysis

Item:	Loading
Factor: Importance to parents	
Importance for parents to go to Medical School	.65
Importance for parents to go to UofM Med. School	.71
Factor: Early influences	
Elementary school teacher	.71
High School teacher	.61
Factor: Family influence and expectations	
Mother influenced to go to Medical School	.70
Father influenced to go to Medical School	.77
Family tradition	.42
Encouragement by family or other adult(s)	.61
Others' expectations that I would enter	.49
Factor: Role models	
Influence of physician	.78
Positive impression of physician	.72
Factor: Emotional support	
Mother approved of going to Medical School	.51
Father approved of going to Medical School	.70
Factor: Friends	
Adult	.51
Friends	.51
College	.58
Factor: Self-related reasons	
Own interests	.62
Own abilities	.57

Table 2: Results of the regression analyses

Variable:	partial	coefficient	std error	t-value	p
NBME-I:					
Importance to Parents	-.08	-3.6	1.5	-2.37	.018
NBME II:					
Importance to Parents	-.074	-3.4	1.6	-2.16	.03
Early Influences	-.065	-4.7	2.5	-1.88	.06
(Time	-.05	-1.9	1.3	-1.46	.14)
clinical score:					
Family influence	.08	1.1	0.5	2.25	.025
Self	.08	2.8	1.3	2.19	.029
Importance to Parents	-.08	-1.7	0.8	-2.14	.033
Early Influences	-.08	-2.9	1.3	-2.25	.025